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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No:	**10/631,219**	Examiner:	**Tod Thomas Van Roy**
Filing Date:	**28 July 2003**	Art Unit:	**2828**
Appellant:	**Richard Scheps**		

Title: **LASER DIODE PUMED SOLID-STATE DYE LASER AND METHOD FOR OPERATING SAME**

Via EFS-Web

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

28 April 2008

APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. §41

Sir/Madam:

This is a reply to the Examiner's Answer by Examiner Van Roy mailed on 21 April 2008.

STATUS OF CLAIMS

Claims 1, 3-7, 9-11, and 13 have been finally rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5530711 to Scheps (hereinafter *'711*). Claims 2 and 8 have been finally rejected under 35 U.S.C 103(a) as being unpatentable over *'711*. Claim 12 has been canceled. The rejection of claims 1-11 and 13 is on appeal.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Should the 35 U.S.C. §102(b) rejection of claims 1, 3-7, 9-11, and 13 be withdrawn when the rejection is based on '711, which fails to disclose each and every limitation of the claimed invention?

II. Should the 35 U.S.C. §103(a) rejection of claims 2 and 8 be withdrawn when the cited reference ('711) fails to teach or suggest all of the claim limitations?

ARGUMENT/REMARKS

The section "Status of the Claims" has been edited from the status originally submitted with the Appeal Brief to accurately reflect the status of claim 13 in accordance with the Examiner's Answer. In addition, the section "Grounds of Rejection to be Reviewed on Appeal" has been amended to include claim 13 under the 1st heading. The Claims Appendix has been updated to list canceled claim 12 to correct the minor error discussed in the Examiner's Answer.

With respect to the Response to Argument section of the Examiner's Answer, the Appellant agrees with the Examiner that the range limitation described in claim 13 of $0.950 \le 1 - e^{-t/\tau_f} \le 0.993$ is equivalent to a diode laser pulse-width range of $3\tau_f$ - $5\tau_f$. The Appellant's previous characterization of the subject range as being $3\tau_f$ - $25\tau_f$ was a typographical error. However, Appellant maintains that this limitation of claim 13 is not disclosed in *'711* to the degree required to support an anticipation rejection under 35 USC 102(b). All other arguments from the original Appeal Brief remain on appeal.

Respectfully submitted,

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<u>CLAIMS APPENDIX</u>

Claims Involved in the Appeal

1. A laser, comprising:

a first optically reflective element;

a second optically reflective element opposed to and aligned with said first optically reflective element to define a laser cavity having an optical axis;

a laser dye gain element having a laser dye and which is interposed between said first and second optically reflective elements along said optical axis for transforming an optical pump signal into a resonant optical signal;

a laser diode system for generating and injecting said optical pump signal into said laser cavity along said optical axis, where said optical pump signal is a sequence of optical pulses having a pulse width of about $n\tau_f$, where τ_f represents a fluorescence lifetime of said laser dye, and $3 \leq n \leq 25$ so that said laser diode system operates in a non-steady-state mode.

2. The laser of claim 1 wherein said optical pump signal has a pulse period in the range of about 1 Khz to 1 Mhz.

3. The laser of claim 1 wherein said laser dye gain element includes a host material selected from the group that includes porous glass, plastic, and sol-gels.

4. The laser of claim 3 wherein said plastic consists essentially of modified polymethyl methacrylate.

5. The laser of claim 1 wherein said first optically reflective element has a curved reflective surface.

6. The laser of claim 5 wherein said first and second optically reflective elements define a nearly hemispherical resonator.

7. A method for generating a laser output signal, comprising the steps of:

operating a diode laser system in non-steady-state mode by generating an optical pump signal that is a sequence of optical pulses each having a pulse width of about $n\tau_f$, where τ_f represents a fluorescence lifetime of a laser dye and $3 \leq n \leq 25$;

directing said optical pump signal into an optical resonant cavity having a laser dye gain element that contains said laser dye for transforming said optical pump signal into an excited optical signal;

resonating said excited optical signal in said optical resonant cavity; and

emitting a portion of said excited optical signal from said optical resonant cavity.

8. The method of claim 7 wherein said optical pump signal has a pulse period in the range of about 1 Khz to 1 Mhz.

9. The method of claim 7 wherein said laser dye gain element includes a host material selected from the group that includes porous glass, plastic, and sol-gels.

10. The method of claim 9 wherein said plastic consists essentially of modified polymethyl methacrylate.

11. The method of claim 7 wherein said optical resonant cavity is a nearly hemispherical resonator.

12. (canceled, not involved in the appeal)

13. A method for generating a laser output signal, comprising the steps of:

operating a laser diode system in a non-steady-state mode by generating an optical pump signal that is a sequence of optical pulses each having a pulse width t, wherein $0.950 \leq 1 - e^{-t/\tau_f} \leq 0.993$, and τ_f represents a fluorescence lifetime of a laser dye;

directing said optical pump signal into an optical resonant cavity having a laser dye gain element which contains said laser dye that is characterized by said fluorescent lifetime, τ_f, for transforming said optical pump signal into an excited optical signal;

resonating said excited optical signal in said optical resonant cavity; and

emitting a portion of said excited optical signal from said optical resonant cavity.